

Claims:

1. The use of a molecule having the amino acid sequence of SEQ ID NO:1 or a variant having at least 85% identity therewith, as a proton-gated cation channel.
2. The use as defined in C1, wherein said molecule forms a homopolymeric
5 channel.
3. The use as defined in C1, in combination with another cation channel sub-unit which forms a heteropolymeric channel with said molecule.
4. The use as defined in C3, wherein said other cation channel belongs to the degenerin/ENaC channel superfamily.
- 10 5. The use as defined in C3, wherein said other cation channel is a P2X ATP-gated channel.
6. The use as defined in C5, wherein said other cation channel sub-unit is P2X2 ATP-gated channel sub-unit.
7. A recombinant host cell comprising a first and a second DNA sequences
15 respectively capable of expressing the molecule and the other cation channel as defined in any one of claims 3 to 6.
8. The use of the recombinant host cell as defined in C7, in the making of a composition or a kit for screening compounds useful as proton-gated cation channel ligands.
- 20 9. The use of the recombinant host cell as defined in C7 for screening compounds useful as proton-gated cation channel ligands.
10. The use of a nucleic acid encoding a molecule as defined in any one of C1 to 6, in the making of a composition or a kit for screening compounds useful as proton-gated cation channel ligands.
- 25 11. The use of a nucleic acid encoding a molecule as defined in any one of C1 to 6, for screening compounds useful as proton-gated cation channel ligands.
12. The use of a molecule as defined in any one of C1 to 6, in the making of a composition or a kit for screening compounds useful as proton-gated cation channel ligands.
- 30 13. The use of a molecule as defined in any one of C1 to 6, for screening compounds useful as proton-gated cation channel ligands.
14. A composition or kit for screening compounds useful as proton-gated cation channel ligands, which comprises a molecule as defined in any one of C1 to 6, a nucleic acid encoding said molecule or a recombinant host capable of expressing said
35 molecule, and any suitable auxiliary component.
15. The use as defined in any one of C8 to 13, or the composition or kit as defined in C14, wherein said ligands are analgesics.